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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,087	01/14/2002	Fabrice Monti di Sopra	P-2433	6253

7590

07/11/2003

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EXAMINER

VY, HUNG T

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,087

Applicant(s)

DI SOPRA ET AL.

Examiner

Hung T Vy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.



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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. In response to the communications dated 01/14/2002, claims 1-44 are pending in this application as result of addition claims 39-44.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-38 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim1, the phrase "two or more VCSEL element" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. The claim does not recite any method to provide two or more VCSEL element and any element or control circuit for providing VCSEL elements and injecting current in order to provide stabilizing the polarization. The claim further is not clear where this device perform for computer or laser because the claim does not recite any circuit. The claim is not clear how to arrange to allow phase coupling between at least two of the plurality of VCSEL element.

Regarding claims 21 and 22, the phrase "polarization-stable VCSEL device" renders the claim indefinite because it is unclear how to couple phase between the

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VCSEL elements. The claim recites the VCSEL but the claim does not recite the structure of the laser. What is an arrangement of two to five phase-coupled VCSEL elements? What is phase-coupled region and how the polarization direction of each of the VCSEL elements remains substantially constant due to the phase-coupling of the VCSEL elements.

Regarding claims 39 and 44, the phrase "a phase coupling region" renders the claim indefinite because it is not clear what is the phase coupling region and how the phase coupling work in order to coupling the phase between VCSEL elements.

Claims 2-20, 23-38, and 40-43 depend from rejected claim 1, 21 and 22 thereby render these dependent claims indefinite.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-33 and 39-44 are rejected under 35 U. S. C. § 102 (b) as being anticipated by Jewell et al., U.S. patent No. 5,331,654.

Regarding claim 21-27, Jewell et al. discloses a polarization-stable VCSEL device comprising: two to five phase-coupled VCSEL elements (78) placed in an array

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(see fig 9); phase-coupling region placed between the phase-coupled VCSEL elements (78) because all VCSEL elements are on the same substrate (12) and have the same polarization (See column 8, line 25), wherein, during operation, the polarization of each of the VCSEL elements remains substantially constant (See column 8, column 23-45). A polarization adjusting means provided in one or more of the phase coupled VCSEL element to select a predefined polarization direction (See fig 9 and 10). The polarization adjusting means comprises a strain element to produce an orientation-dependent strain in one or more of the phase-coupled VCSEL elements (See column 2, line 8-32). The polarization adjusting means comprises electrodes adapted to allow inhomogeneous injection of current into the VCSEL elements (See fig 1 and column 6, line 37-61). Electrodes are arranged in accordance with a crystallographic orientation of a substrate (12) on which the VCSEL device is formed (See fig 1 and column 4, line 29-68 and column 5, line 1-12).

Regarding claims 28-33, Jewell et al. discloses the polarization-stable VCSEL device, wherein the plurality of phase-coupled VCSEL elements are arranged in an array defined by a grid layer comprising electrically conductive portions (38) (see fig 1 and column 5, line 61-68). It is inherent that depend on the shape of VCSEL so the stripes of the grid layer have different shape (See fig 9-10) and array is asymmetric (see fig 9).

Regarding claims 39-43, Jewell et al. discloses a vertical cavity surface emitting laser array device comprising: a first reflector (18); a second reflector (32); a cavity place between said first (18) and second reflector (32); a plurality of vertical surface

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emitting laser elements (78) (see fig. 9) formed on said first reflector (18); and a phase coupling region (see column 8, line 23-28) separating each of said plurality of vertical cavity surface emitting laser elements (78)(See fig 9); whereby the polarization direction of at least two of said plurality of vertical cavity surface emitting laser elements remain substantially constant during operation (see column 8, line 23-44), phase coupling region comprising a reflectivity difference between a resonator region of one of said plurality of vertical surface emitting laser elements and said phase coupling region (See fig. 1).

With respect to claims 1-20, and 44 the methods of stabilizing the polarization of vertical surface emitting laser are considered as product by process steps.

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 34-38 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Jewell et al., U.S. patent No. 5,331,654.

Regarding claims 34-38, Jewell et al. discloses the claimed invention except for the range of reflectivity and grid layer. It would have been obvious to one of ordinary

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skill in the art at the time the invention was made to the same range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Citation of Pertinent References

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Suyama et al. discloses Semiconductor Laser Array Device, U.S. Patent No. 4,737,959.

Conclusion

6. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung VY whose telephone number is (703) 605-0759. The examiner can normally be reached on Monday-Friday 8:30 am - 5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Paul IP can be reached on (703) 308-3098. The fax numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



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Hung T. Vy
Art Unit 2828
June 26, 2003